

AMENDMENTS TO THE CLAIMS

Listing of the Claims:

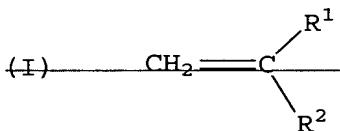
This listing of the claims will replace all prior versions of claims in the application.

1. (Currently Amended) A reaction product of reactants, wherein the reactants comprise:

a) at least one copolymer comprising at least 30 mol % of residues having the following alternating structural units:

-[DM-AM]-

wherein DM represents a residue from a donor monomer, AM represents a residue from an acceptor monomer, at least 15 mol % of the copolymer comprising a donor monomer having the following structure (I) selected from isobutylene, diisobutylene, dipentene, and/or isoprenol:



wherein R^1 is linear or branched C_1 to C_6 alkyl, R^2 is selected from the group consisting of linear, cyclic or branched C_1 to C_{20} alkyl, alkenyl, C_6 to C_{20} aryl, alkaryl and aralkyl, at least 15 mol % of the copolymer comprising an acrylic monomer as an acceptor monomer; the copolymer containing pendant carbamate groups or groups that can be converted to carbamate groups;

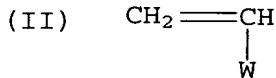
- b) at least one aldehyde; and
- c) at least one monohydric alcohol;

wherein when the copolymer (a) contains groups that can be converted to carbamate groups, the reactants further comprise:

- d) at least one material that will convert said groups into carbamate groups.

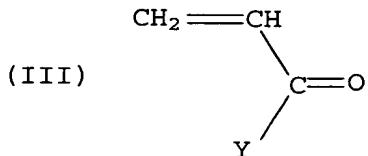
Claims 2 – 4 (Cancelled)

5. (Original) The reaction product of claim 1, wherein the acceptor monomer comprises one or more described by the structure (II):



wherein W is selected from the group consisting of linear or branched C₁ to C₂₀ alkyl and alkylol.

6. (Original) The reaction product of claim 1, wherein the acrylic monomer is one or more described by structure (III):



wherein Y is -OR⁴, and R⁴ is linear or branched C₁ to C₂₀ alkyl, alkylol or carbamoyl alkyl.

7. (Original) The reaction product of claim 6, wherein Y includes at least one hydroxyl group or carbamate group.

8. (Original) The reaction product of claim 1, wherein the copolymer has a molecular weight of from 250 to 100,000.

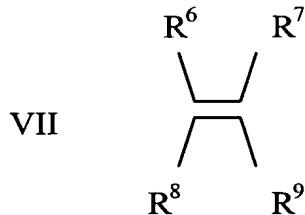
9. (Original) The reaction product of claim 1, wherein the copolymer has a polydispersity index of less than 4.

10. (Original) The reaction product of claim 1, wherein the alternating structural units comprise at least 50 mol % of the copolymer.

11. (Original) The reaction product of claim 1, wherein the acceptor monomer is one or more selected from the group consisting of hydroxyethyl acrylate, hydroxypropyl acrylate, 4-hydroxybutyl acrylate, 2-carbamoyloxyethylacrylate, and 2-carbamoyloxypropyl acrylate.

12. (Original) The reaction product of claim 11, wherein the acceptor monomer is 4-hydroxybutyl acrylate.

13. (Original) The reaction product of claim 1, wherein the copolymer comprises one or more residues derived from other ethylenically unsaturated monomers of general formula VII:



wherein R⁶, R⁷, and R⁹ are independently selected from the group consisting of H, CF₃, straight or branched alkyl of 1 to 20 carbon atoms, aryl, unsaturated straight or branched alkenyl or alkynyl of 2 to 10 carbon atoms, unsaturated straight or branched alkenyl of 2 to 6 carbon atoms substituted with a halogen, C₃-C₈ cycloalkyl, heterocyclil and phenyl, R⁸ is selected from the group consisting of H, C₁-C₆ alkyl, and COOR¹⁰, wherein R¹⁰ is selected from the group consisting of H, an alkali metal, a C₁ to C₆ alkyl group, and C₆ to C₂₀ aryl.

14. (Original) The reaction product of claim 13, wherein the other ethylenically unsaturated monomers are one or more selected from the group consisting of (meth)acrylic monomers and allylic monomers.

15. (Original) The reaction product of claim 1 wherein the groups that can be converted to carbamate groups are hydroxyl groups and (d) is a carbamate-containing material that is reactive with the hydroxyl groups.

16. (Original) The reaction product of claim 15 wherein (d) is methyl carbamate.

17. (Original) The reaction product of claim 1 wherein the aldehyde is formaldehyde.

18. (Original) The reaction product of claim 1 wherein the monohydric alcohol is selected from at least one of methanol, ethanol, n-propanol, isopropanol, n-butanol, isobutanol, and cyclohexanol.

19. (Original) The reaction product of claim 1 wherein the copolymer is substantially free of maleate monomer segments and fumarate monomer segments.

20. (Original) The reaction product of claim 1 wherein the copolymer is prepared in the absence of Lewis acids and transition metals.

21. (Original) The reaction product of claim 1, wherein said reaction product has an equivalent weight of from 125 to 3000, based on etherified carbamate functional groups.

22. (Original) A curable composition comprising the reaction product of claim 1.

23. (Original) A curable composition comprising:
a) the reaction product of claim 1 and
b) at least one material having functional groups that are reactive with the reaction product of a).

Claims 24 - 25 (Cancelled)

26. (Original) The curable composition of claim 23, wherein the material b) has functional groups selected from the group consisting of hydroxyl, methyol, methyol ether, carboxylic acid, amide, thiol, urea, carbamate, thiocarbamate, and mixtures thereof.

27. (Original) The curable composition of claim 26, wherein the material b) is a polymer selected from the group consisting of acrylic, polyester, polyether and polyurethane polymers including mixtures thereof.

28. (Original) The curable composition of claim 23 wherein the material b) is an aminoplast.

29. (Original) The curable composition of claim 27, further comprising at least one auxiliary crosslinking agent different from a) and b), present in amounts of 1 to 50 percent by weight based on total weight of resin solids in the curable composition.

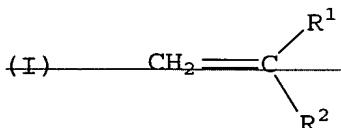
30. (Original) The curable composition of claim 29, wherein the auxiliary crosslinking agent is selected from at least one of polyisocyanates; triazine compounds of the formula: $C_3N_3(NHCOXR)_3$, wherein X is nitrogen, oxygen, sulfur, phosphorus, or carbon, and R is a lower alkyl group having one to twelve carbon atoms, or mixtures of lower alkyl groups; and aminoplasts; and the material b) has functional groups that are reactive with the auxiliary crosslinking agent.

Claims 32 -39 (Cancelled)

40. (Currently Amended) A copolymer comprising at least 30 mol % of residues having the following alternating structural units:

-[DM-AM]-

wherein DM represents a residue from a donor monomer, AM represents a residue from an acceptor monomer, at least 15 mol % of the copolymer comprising a donor monomer having the following structure (I)selected from isobutylene, diisobutylene, dipentene and/or isoprenol,



wherein R^1 is linear or branched C_1 to C_6 alkyl, R^2 is selected from the group consisting of linear, cyclic or branched C_1 to C_{20} alkyl, alkenyl, C_6 to C_{20} aryl, alkaryl and aralkyl, at least 15 mol % of the copolymer comprising an acrylic monomer as an acceptor monomer; the copolymer containing pendant groups of the structure:

$-OC(O)N(R'')CH_2OR'$

where R' is alkyl containing one to eight carbon atoms and R" is selected from H, CH₂OR', linear, cyclic or branched C₁ to C₂₀ alkyl, alkenyl, C₆ to C₂₀ aryl, alkaryl and aralkyl.

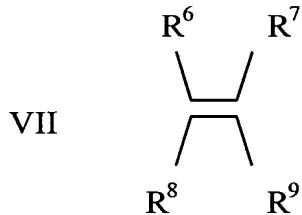
Claims 41 – 42 (Cancelled)

43. (Original) The copolymer of claim 40, wherein the copolymer has a molecular weight of from 250 to 100,000.

44. (Original) The copolymer of claim 40, wherein the copolymer has a polydispersity index of less than 4.

45. (Original) The copolymer of claim 40, wherein the alternating structural units comprise at least 50 mol % of the copolymer.

46. (Original) The copolymer of claim 40, wherein the copolymer comprises one or more residues derived from other ethylenically unsaturated monomers of general formula VII:



wherein R⁶, R⁷, and R⁹ are independently selected from the group consisting of H, CF₃, straight or branched alkyl of 1 to 20 carbon atoms, aryl, unsaturated straight or branched alkenyl or alkynyl of 2 to 10 carbon atoms, unsaturated straight or branched alkenyl of 2 to 6 carbon atoms substituted with a halogen, C₃-C₈ cycloalkyl, heterocyclyl and phenyl, R⁸ is selected from the group consisting of H, C₁-C₆ alkyl, and COOR¹⁰, wherein R¹⁰ is selected from the group consisting of H, an alkali metal, a C₁ to C₆ alkyl group, and C₆ to C₂₀ aryl.

47. (Original) The copolymer of claim 46 wherein the other ethylenically unsaturated monomers are one or more selected from the group consisting of methacrylic monomers and allylic monomers.

48. (Original) The copolymer of claim 40 wherein R¹ is selected from at least one of methyl, ethyl, n-propyl, isopropyl, n-butyl, isobutyl, and cyclohexyl.

49. (Original) The copolymer of claim 40 wherein the copolymer is substantially free of maleate monomer segments and fumarate monomer segments.

50. (Original) The copolymer of claim 40, wherein said copolymer has an equivalent weight of from 125 to 3000, based on etherified carbamate functional groups.

51. (Currently Amended) A curable composition comprising the copolymer of claim 3940.

52. (Currently Amended) A curable composition comprising:
a) the copolymer of claim 3940 and
b) at least one material having functional groups that are reactive with the copolymer of a).

Claims 53 – 54 (Cancelled)

55. (Original) The curable composition of claim 52, wherein the material (b) has functional groups selected from the group consisting of hydroxyl, methylol, methylol ether, carboxylic acid, amide, thiol, urea, carbamate, thiocarbamate, and mixtures thereof.

56. (Original) The curable composition of claim 55, wherein the material (b) is a polymer selected from the group consisting of acrylic, polyester, polyether and polyurethane polymers including mixtures thereof.

57. (Original) The curable composition of claim 55 wherein the material (b) is an aminoplast.

Claims 58 – 69 (Cancelled)